HUME ON INDUCTION

(*Part 1 of 2*)

Text source:

Enquiry Concerning Human Understanding, section 4

DEDUCTIVE vs. INDUCTIVE REASONING

- Philosophers distinguish two very different sorts of reasoning and argument, **deductive** and **inductive**.

- **DEDUCTIVE REASONING** covers inferences that are strictly logically entailed. If the premises are true, then the conclusion must be true.

Example 1.	Premise: P and Q Conclusion: Therefore P
Example 2.	Premise: If P then Q Premise: P Conclusion: Therefore Q

INDUCTIVE ARGUMENTS

- **INDUCTIVE REASONING** covers inferences where the conclusion is an *extrapolation* that logically goes beyond the premises, but is taken to be somehow supported or rendered more probable by the evidence given in the premises.

- Example 1: **Premise**: *On all occasions we have observed*, throwing kerosene on a fire leads to the fire becoming further inflamed.

  Conclusion: Therefore *on all occasions*, throwing kerosene on a fire leads to it becoming further inflamed.

- Example 2: **Premise**: *On all occasions we have observed*, unsupported heavy objects near the Earth's surface fall towards Earth.

  Conclusion: Therefore *on all occasions*, unsupported heavy objects near the Earth's surface fall towards Earth.

POINTS TO NOTE ABOUT INDUCTIVE ARGUMENTS

- Strictly speaking, the conclusion goes beyond the premises.
- It is *not logically entailed* by the premises: it is logically possible that the premises could be true and the conclusion false.
  - Nonetheless, at least with good inductive inferences, the conclusion does seem to gain some support and is somehow rendered more probable by the premises.
  - And the more observations there are, and the more these observations rule out possible defeating variables, the better the conclusion seems to be supported.
- *Experimental science seems to rest on inductive inference, as does our everyday, pre-scientific understanding of what causes what.*

POSSIBLE CHALLENGES TO INDUCTION

(1) Obviously, since the conclusion is not logically entailed by the premises, it is always logically possible that the conclusion will turn out to be false. Perhaps we just haven't yet observed a counterexample to the thesis stated in the conclusion.

--But this doesn't look like a killer problem. Can't we just say that the conclusions of inductive arguments are simply *rendered more probable* or *to an extent confirmed* by the observations?

--Moreover, where we have lots of observations, and those observations cover a whole variety of cases, the conclusion can surely be shown to be *extremely probable*. It is confirmed *to a very high degree of probability*.

HUME'S 'PROBLEM OF INDUCTION'

(2) Hume argues that inductive inference has *no* rational justification or basis in reason *whatsoever*!

- No amount of observations ever gives us ***any*** good reason for an inference to the unobserved! (Not even a *probabilistic* or *best guess* sort of reason.)

  - *E.g. No matter how many times we've observed occasions when kerosene caused fires to inflame further and occasions where water doused fires, we have no reason at all to think that on the next occasion kerosene will fuel the fire and water douse it rather than the other way around.*

HUME'S 'PROBLEM OF INDUCTION' *(continued)*

- His argument:
  - What could justify an inductive inference (an extrapolation from observed cases to unobserved cases)? (ECHU 4.16)
  - Inductive inference cannot be justified '***a priori***' [***independently of experience***], since its always logically possible that the conclusion will be false. (ECHU 4.18)
  - But nor can inductive inference be justified '***a posteriori***' [***by appeal to experience***] -- by pointing out that induction has been pretty reliable form of argument so far -- since this begs the question and presupposes that past experience is a reliable guide to what to expect next. (ECHU 4.19, 4.21)

INDUCTIVE INFERENCE CAN'T BE VINDICATED *A PRIORI* (SINCE IT IS ALWAYS LOGICALLY POSSIBLE THAT IT WILL FAIL)

"All reasonings may be divided into two kinds, namely, demonstrative reasoning, or that concerning relations of ideas, and … that concerning matter of fact and existence. That there are no demonstrative arguments in the case, seems evident; since it implies no contradiction, that the course of nature may change, and that an object, seemingly like those we have experienced, may be attended with different or contrary effects. May I not clearly and distinctly conceive, that a body, falling from the clouds, and which, in all other respects, resembles snow, has yet the taste of salt or feeling of fire? … Now, whatever is intelligible, and can be distinctly conceived, contains no contradiction and can never be proved false by any demonstrative argument or abstract reasoning *a priori*." (ECHU section 4 para. 18)

INDUCTIVE INFERENCE CAN'T BE VINDICATED EITHER *A PRIORI* OR *A POSTERIORI*

"When a man says, *I have found, **in all past instances**, such sensible qualities conjoined with such secret powers*: And when he says, *similar sensible qualities will **always** be conjoined with similar secret powers*; he is not guilty of a tautology, nor are these propositions in any respect the same. You say that the one proposition is an inference from the other. **But you must confess, that the inference is not intuitive; neither is it demonstrative** [i.e. its not a matter of logically guaranteed, deductive reasoning]: Of what nature is it then? **To say it is experimental, is begging the question. For all inferences from experience suppose, as their foundation, that the future will resemble the past**, and that similar secret powers will be conjoined with similar sensible qualities. If there be any suspicion, that the course of nature may change, and that the past may be no rule for the future, all experience becomes useless, and can give rise to no inference or conclusion. It is impossible, therefore, that any arguments from experience can prove this resemblance of the past to the future; since all these arguments are founded on the supposition of that resemblance." (ECHU section 4 para. 21)

ANOTHER WAY OF PUTTING HUME'S CHALLENGE TO INDUCTION

- Hume thinks that all inferences from the observed to the unobserved presuppose the ***uniformity of nature***. After all, without some such presupposition, why would one think that the observed goings-on are ***any*** guide to the unobserved goings-on?

- But Hume then claims that *the only evidence we can have for the uniformity of nature is itself inductive*: as far as we've observed it up until now nature has been uniform, therefore it is uniform even in unobserved cases.

- But in that case it is question-begging to appeal to the uniformity of nature in order to defend induction, since the only evidence we have for the uniformity of nature is itself inductive. (ECHU section 4 para. 19, 21)

A CONCRETE CASE TO ILLUSTRATE THE POINT

- "*Kerosene has always been flammable in the past, therefore it will continue to be flammable*." What could justify this inference from the observed to the unobserved?

- Hume: This inference presupposes that the past is a good guide to the future. But the only reason we believe *that* is because we're making an inductive inference from the observed to the unobserved: *so far as we've observed to date*, the past has always been a good guide to the future; therefore it will continue to be a good guide to the future.

- So the whole attempt to justify inductive inferences by their *track-record* of success is question-begging!

Does this really mean that all our inductive inferences (all our science, all our everyday reasoning about what causes what, and all inferences to unobserved matters of fact) are completely worthless???

To be continued …